

CARE OF PUBLIC ANIMALS
AND
LEATHER EQUIPMENT ISSUED
TO
THE NATIONAL GUARD

PREPARED BY THE MILITIA BUREAU

February, 1920



WASHINGTON
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WAR DEPARTMENT,

WASHINGTON, *February 21, 1920.*

The "Care of Public Animals and Leather Equipment Issued to the National Guard," is published for the information and guidance of all concerned.

[062.1, A. G. O.]

BY ORDER OF THE SECRETARY OF WAR:

PEYTON C. MARCH,
General, Chief of Staff.

OFFICIAL:

P. C. HARRIS,
The Adjutant General.



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CARE OF PUBLIC ANIMALS AND LEATHER EQUIPMENT.

GENERAL REMARKS.

Battles and campaigns may be lost through the inefficient care and handling of animals. Field Artillery can not get into position, Cavalry can not march and maneuver, trains can not supply, without animals. To have animals and keep them, the officers and men concerned must know animals. Ignorance and incompetence cause waste and disaster. Success in military operations is promoted by knowledge and efficiency. As wars come suddenly, this knowledge and efficiency should be gained in time of peace.

A horse is not a machine, which, when run down, can be wound up and set going again. A horse is not a thinking animal, but acts through instinct and habit. He is unable to care for himself and can not notify one of his feelings, needs, and pains, therefore man must be held responsible for his welfare. Animals require gentle treatment. Rough treatment ruins them.

Officers should be familiar with the anatomy and physiology of the horse, his treatment in accident and disease, and with the subjects of stable management, feeding, watering, grooming, shoeing, and exercising. Enlisted men should be instructed in the above subjects as far as circumstances will permit. Stable sergeants, farriers, horse-shoers, wagoners, and drivers should be especially instructed in their duties. A high standard of efficiency requires constant supervision and frequent inspections by officers charged with the care of animals.

STABLE MANAGEMENT.

The commanding officer of a troop, battery, or similar unit, is primarily responsible for the care and condition of the animals pertaining to that organization. He is assisted by his lieutenants and noncommissioned officers. The stable sergeant should be selected with especial reference to his reliability and his knowledge of animals. The stable sergeant is responsible that the stables and their immediate surroundings are thoroughly policed at all times. The stable orderly, stable police, or helpers, designated by the captain, are under his immediate orders. In the morning, stalls are cleaned and the stables policed under direction of the stable sergeant. Dur-

ing the day the stable police collect all manure either in the stables, on the picket line, or in the corral or paddock, and at least once during the day remove said manure from the vicinity of the stables. The stable police assist in the feeding, watering, and bedding of the animals, and in general, perform any work necessary around the stables.

The stable sergeant should inspect the stables daily to see that there are no projecting nails, pieces of metal or wood, which might cause injury to the animals. Woodwork within reach of animals standing in stables or on picket line should be covered with sheet metal or painted with gas tar or with crude oil or with cresol. Feed boxes should be washed with diluted vinegar at least once a week, and especially after feeding bran mash or other soft food. A 5 per cent solution of common salt may be substituted for the vinegar. To disinfect woodwork, scrub with a 5 per cent cresol solution or pass a flame from a blow torch over the wood. Ten per cent of stalls should be in process of repairs; therefore, more stalls than animals are necessary.

During the day, the animals, when not being used or fed, should stand at the picket line or should be turned loose in the corral.

Smoking in the stables is prohibited. No fire or light, other than electric light or stable lanterns, will be permitted in the stables.

Stable guards are under the immediate control of organization commanders, and are for the protection of the animals, stables, forage, equipment, and public property. Their use for police and fatigue duties at the stables is forbidden, but this will not prohibit them from assisting in feeding grain before reveille. The stable guard will attend stables with the remainder of the organization, and groom their own horses, the sentinels being taken off post for that purpose. Sentinels over horses receive orders from the stable sergeant, so far as the care of the horses is concerned.

Individual men returning from mounted duty or pass will report their return to the stable sergeant, who will inspect each horse and give directions for his proper care.

Before entering an animal's stall, and when coming up behind him, speak to him gently, then approach quietly.

Never kick a horse or mule, or strike him about the head, or otherwise abuse him.

If an animal is brought to the stable or picket line in a heated condition, do not allow him to stand uncovered; blanket him or walk him until he is cool. Never throw water on an animal when heated and do not allow an animal's back to be cooled suddenly.

Horses when received in an organization are assigned under direction of the organization commander. Animals newly received should not be allowed in contact with other animals, but should be

isolated and thoroughly inspected for contagious and infectious diseases. Animals just received should have light exercise until they have recovered from the effects of shipment.

Public animals issued to the National Guard or purchased from Federal funds shall be branded on the left shoulder with one branding iron consisting of three letters, as follows:

Cavalry and riding horses	-----	{ U S
		{ C
Artillery and draft horses	-----	{ U S
		{ A
Draft mules, wheel	-----	{ U S
		{ W
Draft mules, lead	-----	{ U S
		{ L
Pack and riding mules	-----	{ U S
		{ P

Each letter of this brand shall be 2 inches in height. The letters shall be fixed in place on the iron so that there shall be an open space of three-quarters of an inch between their nearest points.

Animals with organizations of the National Guard not in the Federal service shall be branded on the left fore hoof with the shortest abbreviation of the name of the State, followed by the organization number assigned to the animal by the responsible officer, and they shall also be branded on the right fore hoof with the designation of the organization to which they belong in the same manner as animals of the Regular Army. For example, the hoof brands on animals issued and assigned to Headquarters Troop, Fifth Texas Cavalry, should be TEX 29 on the left hoof, and HQ 5 on the right hoof; to Battery B, First New York Field Artillery, N Y 12 on the left hoof and B 1 on the right hoof. These letters and numbers shall be on the same line, three-fourths of an inch high, and blocked so as to penetrate the hoof one-sixteenth of an inch.

When animals issued to the National Guard, and animals purchased from Federal funds, die or are killed to terminate suffering or to prevent contagion, a survey report and the certificates required by paragraph 1073, Army Regulations (C. A. R. 58), will be forwarded to the Chief of the Militia Bureau. When such animals become unfit for further use, a survey report will be prepared and forwarded to the Chief of the Militia Bureau for the action of the Secretary of War.

Horses suffer very little from cold; they stand changes of temperature remarkably well, and chills from standing in a draft when heated and tired are the only changes of temperature which are likely to produce sickness. Stables are therefore not primarily intended to keep animals warm, but to protect them from draft and storm. Stables should be kept well ventilated.

The floor of the picket line should be raised and trenches provided to carry off the rain so that the ground on which the animals stand may be kept dry.

The picket line should be drawn tight and raised about 5 feet from the ground.

Picket lines may be either raised or ground lines. The former is preferable. On a raised picket line the halter rope should be of sufficient length to allow the animal to lie down. On a ground line the halter rope should allow the head to be held in a natural position over the line.

It is important to keep the animals from standing in mud as far as possible. Standings should be raised above the level of the ground and improved by rock, gravel, or cinders. In soft ground use fascines or brush before putting on gravel or cinders. Place picket lines at right angles, rather than parallel to contours. Where strong winds prevail, improvise wind screens.

Thorough drainage of the stables, picket line, and corral should be provided.

Water troughs should be cleaned each morning, and under no circumstances should strange animals be allowed to drink at the water trough or be fed in the stable, as one animal with a contagious disease may infect all the animals of the organization.

In order that the animals issued to National Guard organizations be kept in proper condition, it is absolutely necessary that the responsible officers devote a great deal of attention, good judgment, and energy to stable management. The five helpers authorized by National Guard Regulations for each 32 horses should be competent, reliable men, and good workers, and should be made to devote their full time to the work. The feeding, watering, grooming, exercising, cleaning stables and corral, removing manure, repairing stables, picket lines, and corral, caring for forage and equipment, and other necessary labor, will require from the helpers a full day's work. Anything less than that will result in failure.

The commanding officer should prepare a schedule of work for the helpers, dependent upon local conditions, and this schedule should be adhered to. The schedule should prescribe the various kinds of duties to be performed during certain periods of the day, in such manner that each helper may be kept busy, and the work performed expeditiously and efficiently. Frequent inspections by the commanding officer and his assistants are necessary.

Under proper regulations, members of the organization should be encouraged and permitted to use the animals belonging to it, for the purpose of instruction and exercise, and to improve horsemanship. Animals thus used should be groomed by the men using them, on their return to the stables. Irresponsible and uninstructed men should be permitted to use animals only under the guidance of and in the presence of a competent instructor. Long experience has demonstrated that many and inconceivable irregularities in the care and

use of animals will result unless close supervision and careful instruction are carried out.

FEEDING.

The stomach of the horse and mule is small in comparison to their size, and in order to keep animals in good condition, the principle of frequent feeding is desirable.

Forage may be divided into two general classes, hay and grain. The process of digestion is best carried out when the food is sufficiently bulky to keep the stomach and intestines partially filled at all times.

Hay, in its various forms, is the usual long forage. Alfalfa has a scouring effect and should be used in combination with other hay. As a substitute, hay made from oats, wheat, rye, and barley, cut before it is matured, is frequently used. Such hay contains a proportion of grain which reduces the bulk of the ration. Clean straw of oats, wheat, barley, rye, and rice, may also be substituted for hay. Dried corn fodder is also used as a substitute.

Good hay is moderately fine, somewhat hard to the touch, sound, sweet smelling, well cured, and free from weeds. The color should be a bright natural green, and should give an idea of newness. The flowering heads of the grasses ought to be present and should not shell out when rubbed. Hay that is badly cured, overripe, mow burned, caked in the bale, dusty, musty, or moldy, is unfit for use.

Oats are the usual and most valuable short forage. The legal weight of a bushel of oats is 32 pounds, but northern oats often weigh more than this amount. Good oats are short and plump, of good color, hard to the feel, rattling when poured out on a hard surface, without smell, having the taste of good oatmeal, and free from dirt, stalks, stems, and seeds of other plants. Oats that are foxy, bleached or sulphured, damp, sprouting, musty, or moldy, are unfit for use. Corn is a good substitute for oats but has a tendency to produce heat and fat. It is therefore most useful in cold climates. Oats are fed whole. Corn may be fed whole, either shelled or on the cob, or it may be crushed, and is usually fed as a part ration only. Good corn is dry, hard, of bright color, and free from dirt. Corn that is heated, discolored, or moldy, is unfit for use. Seventy pounds of corn on the cob should make one bushel or 56 pounds of shelled corn.

Barley, rye, wheat, rice, linseed meal, peas, and beans, are substitutes for oats.

Bran is an excellent food for animals, laxative in character, and is usually fed in the form of a bran mash. A bran mash is made by pouring boiling water on 2 or 3 pounds of bran in a bucket, adding a

tablespoonful of salt. Other laxative foods are turnips, beet roots, carrots, and green crops. Care should be taken that green foods are not piled up and allowed to heat before feeding, for this will cause scouring and colic.

Allowances for National Guard animals not in field service are as follows:

Oats, 10 pounds per day per horse; 8 pounds per day per mule.

Bran may be substituted for oats in such quantities as are required.

Hay, 14 pounds per day per horse; 14 pounds per day per mule.

Straw, as bedding, 100 pounds per month per animal.

Rock salt, 0.8 ounce per day per animal.

Vinegar, 0.1 gill per day per animal.

Animals should be fed at regular hours, three times daily, giving the largest feed at night, and the food should be pure, clean, and sound.

With the allowances stated above the following is a sample of the routine that may be followed:

Grain: Morning, 3 pounds; noon, 3 pounds; evening, 4 pounds.

Hay: Morning, 3 pounds; noon, 4 pounds; evening 7 pounds.

If hay is not fed in the morning, 5 pounds may be fed at noon and 9 pounds in the evening. A piece of rock salt may be kept in each feed box, and in the field crushed salt may be fed once or twice a week mixed with grain.

In order that the exact amounts of grain desired may be fed, metal or wooden containers holding the required amounts and plainly marked, should be furnished the stable police.

Forage should be kept under cover, and should be raised above the floor or ground as a protection against water or dampness. The commanding officer and stable sergeant should check the amount of forage when received, and frequently thereafter in order to prevent loss by theft or other causes.

Grazing is beneficial and should be practiced at every opportunity, care being taken that the animals do not overeat. Grazing on wet or frosted alfalfa or clover must not be allowed, as flatulent colic is sure to result.

In stables, feed boxes and mangers should be provided. In the field nose bags and hay nets should be used. Every effort should be made to prevent feeding on the ground. Where hay nets are not available and it is necessary to feed hay on the ground, stable police or sentinels should be instructed to keep the hay where the animals can reach it until it is consumed.

Do not allow grooming kit or anything else except grain to be carried in the nose bag.

Keep nose bags or other feeding utensils clean.

Have nose bags removed as soon as animals have finished eating. Water before feeding.

If expecting hard work immediately after feeding, give half feed only.

Make every effort to prevent waste of forage. It is calculated that the ration allowance is just sufficient to keep animals well nourished.

A double handful of chaff in a grain feed will prevent the animal from bolting his grain. Several large round stones in the feed box will prevent animals from bolting their grain.

Never feed grain to an animal when heated or fatigued. Grain is a highly concentrated food that requires high digestive power. Hay will not hurt a horse however heated or fatigued he may be.

WATERING.

The horse and mule require from 5 to 15 gallons of water daily depending upon the temperature and the amount of work they are doing.

Water should be fresh, pure, and clear, and free from taste, color, and smell.

Unless heated, it is desirable that animals should have free access to water.

Except in cold weather, animals should be watered at least three times daily; in the morning, before the noon feed, and before the evening feeding. As animals rarely drink well in the early morning, the first watering may follow the feeding, but with some interval intervening.

Do not water an animal when heated unless the exercise or march is to be immediately resumed. Sponging out the mouth and nostrils is refreshing to the heated horse and will not hurt him.

Unless necessary do not take animals into the water to drink, particularly in ponds and sluggish streams. Where clear, rapid streams are available for watering, this precaution is not necessary.

Drinking dirty water, if persisted in, will upset digestion and cause sand colic and general inefficiency.

On the march, the oftener animals are watered the better, since it is not usually known when another watering place will be reached. Canvas buckets are very useful, especially in a well-settled community.

To prevent infection, avoid watering in troughs used by civilians.

In winter, horses that are tired or heated should be given water that has been slightly warmed.

Watering discipline is very important and is an indication of the efficiency of a command. Animals are watered under the immediate supervision of the senior officer or noncommissioned officer present at stables or at other time of watering. The animals should be rid-

den or led at a walk to and from the watering place, and there should be no crowding or hurrying. Each animal should be allowed to drink quietly and as much as he wants. One man should not lead more than two animals, and no two animals should be tied together. Kicking horses should be watered separately.

An officer should always be present when animals of other organizations are liable to be met at the watering place.

Any animal with the slightest suspicion of cold or infection should be watered in his own bucket, which should be kept separate and used by no other animal.

In camp, where water is obtained from a stream, horses should be watered above the place designated for bathing and for washing clothing.

Remove bits before watering.

GROOMING.

Grooming is essential to the general health and condition of animals. Its objects are cleanliness, prevention of disease, particularly of the skin, and the improvement of the animal's health and appearance.

Animals improperly groomed, with ragged manes, unkempt pasterns, and improperly looked after, indicate an inefficient organization and lack of training. Clean animals, properly equipped and smartly turned out, attract favorable attention, add esprit to the organization, and indicate efficiency and good discipline.

The captain or officer in charge, assisted by his officers and non-commissioned officers, supervises the grooming and care of equipment.

The horses of officers and of the first sergeant are groomed by designated men. All other noncommissioned officers and men groom their own mounts. The first sergeant assigns men for grooming any extra animals, and those whose riders are absent.

Animals are habitually groomed at the picket line. They should be brushed off before going to drill or exercise.

Animals should be groomed at least once daily, the best time being soon after the drill, exercise, or march is completed. On returning from a drill or exercise, and after a march, the animals are unbridled, unsaddled or unharnessed, the equipment cleaned and put away, and the men assemble at the picket line.

At the command "Stand to heel" by the first sergeant, each man stands at attention 1 yard in rear of his horse, currycomb in right hand and horse brush in left hand.

At the command "Commence grooming" by the first sergeant, the men proceed as follows: First use currycomb on near side of horse, beginning at neck, then chest, shoulders, near foreleg down to

knee, then back, flank, belly, loins, and rump, then near hind leg down to hock.

Change currycomb to left hand, brush in right, and proceed in a similar manner on the off side of horse.

Strike currycomb against heel frequently to free it from dirt.

Take brush in left hand, currycomb in right, and brush entire near side of horse in same order as when currycomb was used except that in brushing legs brush down to the hoof.

Take brush in right hand, currycomb in left, and proceed in a similar manner on the off side. After every few strokes clean the brush from dust with currycomb.

In using the brush the man should throw the weight of his body against the brush.

Having done with the brush, rub or dust off the horse with the grooming cloth, wipe about the face, eyes, and nostrils, brush mane and tail, and clean the dock. Finally, go over the legs once more and clean out the hoofs. Some officers prefer to have the hoofs cleaned out at the command "Commence grooming," thus preventing careless, lazy, or inattentive men from neglecting this important duty.

In cleaning the mane and tail begin brushing at the end of the hair and gradually work up to the roots, separating the locks with the finger so as to get out all scurf and dirt.

The currycomb should never be used on the legs from the knees and hocks downward, nor about the head, and when occasionally used to loosen dried mud or matted hair on the fleshy parts of the body it should be applied gently.

At each "stables" the animal's feet and shoeing are carefully examined, and those requiring shoeing are reported to the stable sergeant. Each animal should be inspected by an officer or the first sergeant before the man who has groomed him is permitted to leave.

At the time horses requiring shoeing are reported, a white rag should be woven in their tails.

On intimation by the officer in charge, the grooming is terminated by the first sergeant giving the command "Cease grooming."

Men should not be allowed to talk or loiter during grooming, and quick grooming should be encouraged. Under usual conditions an animal should be thoroughly groomed in about 25 minutes.

The space between the branches of the under jaw, under the crown-piece of the halter, at the bends of the knees and hocks, under the belly, and between the forelegs and thighs, are the places usually neglected when the grooming is not thorough, and should be looked at when the animal is being inspected.

The grooming kit should be kept clean at all times. Hoof picks, if not issued, can be improvised by the horseshoer.

Mud should be wiped off with hay or straw, or it should be allowed to dry, then removed with a brush.

As a general practice, washing animals should not be allowed except in warm climates, and then the animal should be thoroughly dried by wispings and rubbing. Washing mud from the legs and belly frequently results in such diseases as grease heel and mud fever.

Hand rubbing is an excellent massage. It is especially useful for removing the loose hair of the coat and for stimulating the skin. When an animal has had hard, exhausting work his legs should be hand rubbed.

The sheath is kept clean by washing, when necessary, with warm water and castile soap.

Manes, tails, and forelocks of public horses will not be altered except by such reasonable plucking as may be necessary to prevent shagginess. The pasterns and that part of the mane where the crownpiece of the bridle rests should be neatly trimmed. Tails of horses may be trimmed immediately below the hock.

Clipping in the spring season is advisable and in individual cases may be necessary. No animal should be clipped without the authority of the organization commander. In clipping the legs care should be taken not to cut the short hairs at the back of the pasterns or in the hollows of the heels. These hairs when clipped irritate the skin and may cause scratches.

Horses reported sick or requiring veterinary attention should have a red rag woven in their tails.

SHOEING.

There is an old saying, "No foot, no horse," also "A horse is no better than his feet;" therefore, particular attention should be paid to an animal's foot.

The foot should be prepared for shoeing so that it will approximate as nearly as possible to a state of nature, and only such trimming is allowed as is absolutely necessary for the purpose of fitting and securing the shoe.

When animals are in constant use it is necessary to prevent the too rapid wear of the hoof. The modern shoe is the best means to accomplish this result, although it seriously interferes with the natural contraction and expansion of the foot. When shoes are left on the feet for too great a length of time corns and other ailments result. Ordinarily, a shoe should be renewed once a month. The heavier the shoe the greater the labor of the horse. Except in special cases the lightest shoe that will last about four weeks is the best shoe.

Animals will be shod according to the principles outlined in the "Manual for Army Horseshoers, 1917."

The knife must never be used on the bars or on the frog. The bars strengthen the hoof and assist in its expansion. Cutting, therefore, weakens them and prevents them from performing their function.

The practice of using the knife to trim the bars or to cut a notch at the junction of the frog and bar at the heel (called "opening the heels" in civilian shops) always tends to produce contracted feet.

Never use a knife on the hoof of a horse that has been running barefoot, nor on flat feet.

Ragged parts of the frog may be cut away by careful use of the nippers.

The hot shoe must never be applied to the horse's foot under any circumstances.

The ground surface of the shoe should be level and smooth, except for use in snow. That portion of the upper surface which presses against the bearing surface of the foot must be level, smooth, and accurately shaped to support it, and when the upper shoe surface is wider than the bearing surface the inner edge must be concaved to avoid excessive sole pressure. This is one of the most important requisites of correct horseshoeing. Concussion of the sole against the inner edge of the upper shoe surface invariably produces soreness.

In driving a nail always hold it with the flat side toward outside edge of the shoe.

Nails should come out at a height of not more than 1 inch from the bottom of the hoof.

An extra set of fitted shoes ready to be put on should be provided for each animal while in garrison. One fitted fore and hind shoe for each animal are habitually carried on the march.

In garrison a shoeing book should be kept by the horseshoer showing the name and hoof number of each horse, the date of last shoeing, and the class of shoes then used. The corresponding entries should be made daily, and at each "stables" the horses appearing on the list as shod since the last prior "stables" should be carefully inspected by the responsible officer.

Requisitions should be based upon the following allowances when organizations are not on field service:

Front shoes, $2\frac{1}{2}$ pounds per animal per month.

Hind shoes, $2\frac{1}{2}$ pounds per animal per month.

Horseshoe nails, $\frac{1}{2}$ pound per animal per month.

Blacksmith's coal, $1\frac{1}{4}$ pounds per animal per month.

The service shoe is a normal shoe, and in the mounted service four sizes of machine-made shoes are issued, Nos. 1, 2, 3, and 4. It will be noted that the heels are much longer than necessary so that the extra length can be used in turning heel calks or in making a bar

shoe. The greater proportion of Cavalry horses will use the No. 2 shoe, and the greater proportion of Artillery horses the No. 3 shoe.

The use of the calk shoe is prohibited except at times when local conditions make its use necessary to prevent slipping.

The horseshoe nails issued in the mounted service are machine made, and the sizes in general use are Nos. 4, 5, 6, and 7. No. 4 nail is used for plate shoes, which are merely lightweight shoes turned from bar steel; No. 5 nail for a No. 1 or 2 shoe; No. 6 nail for a No. 3 or 4 shoe; No. 7 nail for the large feet of some Artillery horses.

EXERCISE.

Condition means thorough bodily and muscular fitness for the work required. To produce the best results, the policy of proper feeding and a fair amount of work should be adopted. Condition should not be confused with fatness.

The condition of the full-fed, hard-worked animal is said to be hard; of the underfed and overworked, poor; that of the fat animal doing no work, soft.

An animal in hard condition has greater resistance to friction and pressure than one in soft condition. Most injuries to the back, shoulders, or other parts of the body due to harness or saddlery are caused by friction or by pressure, or by a combination of the two. Friction rubs and wears the part away; pressure partly or entirely cuts off the blood supply and so strangles the tissues. The animal in soft condition has great vitality, but it quickly evaporates and he has practically no resisting power at all.

In every function of a horse the question of condition presents itself. It influences lameness and sore backs; it is the basis of staying power and resistance to disease.

Animals are kept in condition by a combination of sufficient good food and sufficient healthy exercise, continued over a long period.

It is desirable that animals be exercised under the saddle or in harness. If this is impracticable, riding one animal and leading one or two others may be resorted to. One man should never lead more than two animals. In leading, care should be taken to lead as much on the left as on the more convenient right side.

It is desirable that animals have two hours' exercise daily. Where this is impracticable, one hour at least should be devoted to exercise. In National Guard organizations where there are five helpers to every 32 horses, 30 horses may thus be exercised in about two hours, afterwards turning them loose in the corral or paddock. Turning loose in corral alone does not give sufficient exercise.

The first and last parts of the exercise should be at a walk, the animals being brought back to the line cool. During the exercise

the gaits should be the walk and trot, at the rate of 5 or 6 miles per hour.

To crowd much work into a short period under the impression that it will add to condition is a false theory.

If a large space is available for paddock purposes, it should be divided into several enclosures, giving space for a part of the animals to move about quietly in each, but not enough to encourage them to gallop.

MARCHES.

A successful march, whether in peace or war, is one that places the men and horses at the time and place needed in the best possible condition for the service required. Failure of mounted troops to successfully carry out a mission is due as a rule to exhaustion or injuries to the animals rather than to the men.

Solicitude for the condition of animals on the march should become second nature, and the care of animals should receive first consideration.

The average daily march of a small cavalry column is about 25 miles when the horses are in condition, with one day's rest in seven. When the march is known to be a long-distance one, the rate for the first few days should be less than 20 miles per day and gradually increased. These rules may be modified by reason of emergencies, character of roads or weather, proximity of water and grazing, availability of camping places, etc. The question of the length of the daily march is mainly one of good judgment and experience on the part of the commanders.

The gait and pace of the daily march are influenced by both the time the horse is to carry the load and the distance to be covered.

The quicker a march can be completed without forcing, the less the fatigue to both horse and man.

The usual marching gaits are the walk and the trot alternately. The gallop is rarely used on a march. The walk should be at the rate of 4 miles per hour, exclusive of halts. This rate is fast, and some horses will have to be trained to walk that fast. The trot should be at the rate of about 8 miles per hour, which is a slow pace, and allows all horses in the column to take the same gait. A cavalry column at the regulation walk and trot should be able to make, including halts, 5 miles per hour or better.

The above statements apply to Field Artillery as well as Cavalry, except that the daily march of Field Artillery will average about 20 miles.

Loaded transport usually marches at the rate of $2\frac{1}{2}$ to 3 miles per hour, including halts.

Rolling country, with ascents and descents, stretches of hard or stony road, head winds, mud, dust, or sand, crossing of streams, etc., will impose corresponding changes of gait or pace on each of the small elements of the column as it reaches them. To provide for this, troops in route column, when so directed, take greater distances than prescribed in order to allow for closing up at checks.

Trotting down hill should not be permitted. Frequently the men should be required to dismount and lead for short distances, especially down grades. This rests the horses by relieving them of the weight and it also rests the men by bringing into play muscles other than those exerted in riding. This often prevents lounging in the saddle.

The habitual formation for marches is route order in column of fours or twos; in Field Artillery, section column.

The hour for starting the day's march depends upon various circumstances. Ordinarily mounted commands do not leave camp for at least an hour after daylight. Both men and animals rest well in the early morning hours. In the darkness feeding arrangements are not satisfactory and saddlery and harness are properly adjusted with difficulty. Night marches are slower and more fatiguing than those during daylight hours.

Ample time should be allowed for grooming and feeding and breakfast, and the signal for saddling or harnessing should not be given until other duties are completed. Every man should carry a mid-day feed for his animal.

The first mile or two should be made at a walk, with a halt of 10 minutes toward the end of the first hour. Thereafter hourly halts of 5 minutes for Cavalry and 10 minutes for Field Artillery should be made, except that if the march is to be prolonged into the afternoon, a longer halt should be made at noon, when the girths are loosened, bridles removed, horses fed, and the men eat their lunches.

An invariable rule on the march and in camp is to have all troopers dismount promptly on halting; in other words, never to permit a man to sit a moment in the saddle while his horse is standing still, and under no circumstances to lounge in the saddle.

At each halt officers and noncommissioned officers should inspect the adjustment of saddles and harness and should at no time tolerate lounging in the saddle. The men at each halt should be required to inspect, and, if necessary, clean out their horses' feet.

Sore backs are usually produced by improper saddling, dirty saddle blankets, and lounging in the saddle.

On the march horses should be watered whenever opportunity occurs, conforming as far as practicable to the rule of watering before feeding. Public watering troughs should ordinarily be avoided on account of danger from infection. The use of buckets will often make watering places otherwise insufficient thoroughly satisfactory.

On completing the day's march, do not allow the horse's back to be cooled suddenly. To cool the back gradually remove the pack and equipment from the saddle, loosen the girth, remove the blanket and replace it with the dry side next the back; girthing it loosely; or after unsaddling, leave the blanket on the horse, securing it with the surcingle.

SICK ANIMALS.

The stable sergeant has immediate charge of animals on sick report. He may be assisted by one or more stable men.

In the absence of a veterinarian the sick animals are treated by the stable sergeant, under the direction of the captain, following the provisions of the "Manual for Stable Sergeants, 1917."

Loss of appetite is usually one of the first indications of disease; any deviation from the normal, strong, full and regular pulse indicates an abnormal condition; difficult or rapid breathing in animals at rest is a prominent symptom of disease of the respiratory organs, and it may also be observed in some cases of flatulent colic; in fever or in diseases of an inflammatory nature the temperature of the body rises above the normal standard; in contagious diseases a rise in temperature often precedes any visible symptoms, a fact which is of great importance in detecting and weeding out suspected animals, and any animal showing a temperature of 102 degrees F., or over, should be isolated at once.

Good nursing is of the greatest importance in the care of the sick and injured. Absolute rest and perfect quiet are essential, and when secured they hasten the process of recovery without inflicting unnecessary pain.

The first and most important point is, if practicable, to place the sick animal in a clean, light, well-ventilated box stall, free from drafts, and located apart from other animals. Clean bedding should be provided and the stall kept free from manure and moisture. In the field sick animals should be kept by themselves and made as comfortable as circumstances may permit.

Animals which are likely to remain on sick report for some time should have their shoes removed.

Food should be given often and only in such quantities as the patient will readily eat. Only the choicest food, and that suitable to the requirements of each case, should be provided.

Fresh water should be kept constantly within reach and changed at least three times daily, or oftener in warm weather.

Animals that are weak and depressed should not be worried with unnecessary grooming. Animals that are only slightly indisposed should be groomed in the usual way.

Buckets, feed boxes, mangers, grooming kits, and all utensils used in or about the sick stall must be kept absolutely clean. On removal of the sick animal the stall and everything connected therewith should be thoroughly cleaned and disinfected.

Exhausted horses should receive a good stimulant (aromatic spirits of ammonia, nitrous ether, etc.) and their legs and bodies should be well rubbed and massaged.

Medicines may be administered into the body through any of the following channels: First, by the mouth; second, by the lungs and upper air passages; third, by the skin, externally; fourth, under the skin, hypodermically; fifth, by the rectum; sixth, by injection into a vein (intravenously).

Medicines may be administered by the mouth: In the form of powders, by placing the drug upon the tongue or in the food; in the form of a ball, made by rolling the drug in tissue paper or by putting it into a capsule, and dropping it at the root of the tongue; in the form of a drench, by first elevating the head and then slowly pouring the liquid into the mouth; and by injecting the liquid into the back of the mouth by means of a syringe.

Medicines are administered by the lungs and upper air passages by being brought in contact with the mucous lining of the respiratory tract by inhalation. Inhalations are given by placing a bucket containing hot water or scalded bran, to which one ounce of turpentine, carbolic acid or creolin has been added, in the bottom of a gunny sack. The horse's nose is then inserted into the top of the sack where it is held from 20 to 30 minutes. Liquids should under no circumstances be injected or poured into the nostrils.

Medicines are applied to the skin for their local action only: To destroy parasites; for their antiseptic action; for their soothing or stimulating effect; for their blistering action.

Medicines may be given by the rectum when the animal is unable to swallow, also to destroy worms in the rectum, and to cause evacuation of the bowels. For the latter purpose, warm water is most useful.

Medicines are given under the skin, in concentrated form (alkaloids) when prompt action is desired. Such medicines are to be used only as directed by the veterinarian.

Medicines are administered into a vein when rapid action is required. This method is used only by veterinarians.

The normal pulse rate of a horse is from 36 to 40 beats a minute. The pulse may be taken by placing the fore or middle finger crosswise on the submaxillary artery at the margin of the lower jaw, counting the pulsations for half a minute and then multiplying the result by two.

The temperature of a horse varies from 99 to 100° F. It is increased by exercise, excitement, and disease. The temperature is taken with a clinical thermometer in the rectum. The thermometer is moistened or oiled, the mercury is shaken down to 96° or below, and the bulb of the thermometer is inserted into the anus and allowed to remain three minutes, when it is withdrawn and the temperature noted.

Solutions are liquid preparations containing substances which readily dissolve. A saturated solution is made by adding to a liquid all of a drug that the liquid will dissolve. To make 1 per cent solution of creolin, add 1 part creolin to 99 parts water; to make 5 per cent solution of creolin, add 5 parts creolin to 95 parts water, etc. Other fluids—alcohol, ether, glycerin, etc.—are also used in making solutions. To make 1 per cent solution of a solid drug, add 1 part of the solid to 100 parts water; to make 5 per cent solution of a solid drug, add 5 parts of the solid to 100 parts water, etc.

Mixtures are liquid preparations containing substances which do not dissolve.

An ordnance spoon holds approximately 1 ounce of salt, zinc sulphate, lead acetate, potassium nitrate, etc., when heaping full. An ordnance spoon holds approximately 2 drams of gentian, ginger, nux vomica, etc.

The following are some of the most common classes of medicines used in the treatment of animals:

Antiseptics.—Agents used on or in the body in the treatment of wounds or diseases, to prevent the growth and development of germs, such as carbolic acid, bichloride of mercury, iodine, creolin, etc.

Anesthetics.—Agents that produce loss of the sense of touch or pain, such as chloroform and ether.

Astringents.—Agents which contract tissues and check secretions, such as alum, zinc, tannic acid, etc.

Anodynes.—Agents which relieve pain, such as opium, belladonna, cannabis indica.

Caustics.—Agents which destroy tissue by burning, such as copper sulphate, lunar caustic (silver nitrate).

Disinfectants.—Agents which destroy the germs that cause infectious diseases, such as chloride of lime, carbolic acid, creolin, formalin.

Diuretics.—Agents which increase the excretion of urine, such as nitrate of potash, turpentine, nitrous ether.

Febrifuges (antipyretics).—Agents which reduce fever, such as nitrous ether, quinine, cold water.

Laxatives.—Mild cathartics, such as small doses of oil, bran mash, green foods.

Purgatives (cathartics).—Agents which empty the bowels, such as aloes, salts, linseed oil.

Parasiticides.—Agents which kill animal and vegetable parasites infesting the skin, such as carbolic acid, creolin, salicylic acid.

Stimulants.—Agents which promptly but temporarily increase nervous vigor, such as alcohol, aromatic spirits of ammonia, ether.

Tonics.—Agents which gradually but permanently improve the general health and increase vigor, such as iron sulphate, gentian, nuxvomica.

Vermicides.—Agents which kill intestinal worms, such as turpentine, copper sulphate, iron sulphate.

Vermifuges.—Agents which remove intestinal worms by purgation, such as aloes, linseed oil.

Flannel bandages are used chiefly on the legs for warmth, support, protection, and the retention of dressings. Cotton bandages are used for the retention of dressings and the protection of wounds.

Absorbent cotton is used as a substitute for sponges in the cleansing of wounds; to make packs by soaking it in medicinal solutions; and to retain dry dressings in contact with the surfaces of wounds.

Antiseptic gauze is a light, loosely woven variety of cloth which has been saturated with an antiseptic and dried. Used as a covering for wounds. Gauze must be kept clean and the part that is to come in contact with the wound should never be touched with the fingers or hands.

Oakum is used principally in packing horses' feet. It may also be used as a substitute for sponges, and, in the absence of cotton and gauze, as a covering for wounds.

Packs are made by soaking cotton, gauze, oakum, or similar material in hot or cold medicinal solutions, after which they are applied to the part with a bandage.

Poultices are preparations for the local application of heat and moisture. They are made usually of flaxseed meal and bran, but other substances, such as oatmeal and bread, may be used. Poultices are most useful about the feet.

Wounds are not healed by treatment. The object of treatment is to keep the injured parts clean and protected, and nature repairs them. Cleanliness is therefore essential.

The general treatment of wounds consists in stopping the bleeding, cleaning the wound and removing all foreign bodies, applying an antiseptic, closing the wound, and providing for drainage.

Some of the most common of the injuries and diseases met with in the military service are as follows:

Sore backs.—Caused by faulty saddling, wrinkled or dirty blanket, poor riding, long continuous work in the saddle, profuse sweating, and rain. Hard, hot, painful swellings appear usually within an

hour after unsaddling. Ascertain and remove the cause, if possible. In fresh cases, apply cold irrigations or baths with gentle hand rubbing, this to be followed by the application of cold in the form of packs saturated and kept wet with cold water and held gently in position by means of a surcingle or bandage. When sitfasts appear apply warm baths or warm linseed poultices until the dead skin becomes loose; it is then removed with the forceps and a knife, after which the injury is treated with tincture of iodine or an antiseptic powder. Slight galls, chafes, or abrasions are treated with white lotion, zinc oxide ointment, powdered boracic acid, or a solution of tannic acid, 1 ounce in a pint of witch-hazel or alcohol.

Sore shoulders.—Caused by dirty, ill-fitting, and improperly made collars; excessive weight of the pole, causing pressure on the top of the base of the neck; improper adjustment of the harness or trace plates; unequal length of traces; working with head drawn to one side; long continuous work in the harness; rough roads and poor driving. The treatment is the same as for sore backs.

Bruises of the legs.—Caused by falls, kicks, treads, and in draft animals, by blows from the pole. Apply cold irrigations and cold packs. When the inflammation is reduced apply tincture of iodine or a blister if required.

Abscesses.—An abscess is a local collection of pus in the tissues of any part of the body. It is usually the result of an inflammation caused by an injury. Small abscesses in the early stages must be scattered by the application of cold packs or tincture of iodine. The best results, however, are usually obtained by the use of warm baths or warm linseed poultices. When the swelling becomes soft in the center it should be opened at its lowest point. After opening, the cavity must be flushed once or twice daily with an antiseptic solution until pus ceases to flow.

Burns and scalds.—Bathe or tie up the parts with any mild antiseptic solution, or dust the surface with boric acid or flour, and cover with cotton and a bandage. If sloughing occurs, treat as an ordinary wound.

Rope burns.—Abrasions or lacerations usually at the back of the hind pasterns, caused by getting the foot over the halter shank, picket line or lariat. Trim away all torn and ragged edges, clean the wound thoroughly, and apply an antiseptic.

Lameness.—Caused by injuries and by diseases of the bone, such as ringbone, sidebone, spavin and splints. It is best to obtain a veterinarian, who should detect the cause and direct the treatment.

Sprains.—Injuries due to excessive exertion, and affect muscles, tendons, and ligaments. The general treatment of sprains is to rest the animal, removing the shoes and leveling the feet. Bathe the

injured part for one-half hour twice a day with cold water and follow each bath with packs of white lotion (half strength) or cold water. Continue this treatment for one week, then use warm baths, followed by warm packs.

Spasmodic colic.—Caused by sudden chilling of the body due to large drinks of cold water, or exposure to cold drafts or rain; improper feeding; indigestible food. The symptoms are sudden and more or less violent attacks of pain, lasting from 5 to 10 minutes, with a tendency to recur. The animal paws, walks about, sweats profusely, rolls, and when the pain is severe, may throw himself violently down.

The temperature is normal or only slightly elevated. Give the following drench: Spirits nitrous ether, 2 ounces; cannabis indica, 3 drams; water to make 1 pint. Give at one dose. If there is no relief in one-half hour, give $1\frac{1}{2}$ pints linseed oil or 6 drams of aloes. Give rectal injections of 5 or 6 gallons of warm water. The spirits of nitrous ether and cannabis indica may be repeated in one hour if necessary. Withhold food for 12 hours after all pain has disappeared, and feed sparingly for the next day or two.

Flatulent colic (wind colic).—A painful affection of the stomach and bowels due to their distention with gas. Caused by improper foods, such as musty oats or corn, or sour bran; green foods, as corn, clover, and alfalfa, especially when eaten wet or frosted; new hay and new oats; sudden changes of diet, and feeding animals that are overheated and exhausted. The symptoms are bloating and swelling of the abdomen; continuous colicky pains, mild at first, but increasing in severity as the abdomen becomes more and more distended with gas. There are no periods of ease as in spasmodic colic. The animal may lie down but for a short period only. Walking is painful, breathing is rapid and difficult, and there is great restlessness. Temperature normal or slightly elevated. Give drench at once of $1\frac{1}{2}$ pints of linseed oil and 2 ounces of turpentine. If there is great pain, drench as directed for spasmodic colic. Give frequent injections of 5 or 6 gallons of warm water. When the animal has recovered, feed as directed for spasmodic colic.

Nasal catarrh (cold in the head).—An acute inflammation of the membrane lining the nasal chamber and sinuses. Caused by exposure to cold and rain, particularly when tired and heated; damp, poorly ventilated stables; sudden changes in temperature, i. e. from warm to cold. Blanket the body, hand rub the legs and bandage them loosely with flannel. Feed bran mashes, steamed oats, gruels, etc., and keep plenty of fresh water where the animal can readily reach it. Give one-half ounce potassium nitrate in the feed or drinking water three times daily, or ammonium chloride may be given instead of the po-

tassium nitrate. The following prescription is excellent in the treatment of all catarrhal conditions:

Ammonium chloride-----	ounces--	3
Quinine sulphate-----	drams--	6
Potassium nitrate-----	ounces--	3

Mix and make into 12 powders. Give a powder three times a day.

Pneumonia.—An inflammation of lung structure affecting one or both lungs. Caused by overexertion; badly ventilated stables; exposure to cold, especially when heated; infection, and carelessness in drenching. The symptoms are a severe chill, with a temperature varying from 103 to 107°, followed by redness of the visible mucous membranes, rapid, difficult breathing, and a full rapid pulse (from 50 to 80 per minute). The legs and ears are cold and there is great weakness. There is frequently a reddish discharge from the nose and there may or may not be a cough. Clothe the body according to the season; rub the legs well and bandage with flannel. Feed easily digested food. Give one ounce nitrate of potassium in the drinking water, morning and evening. If the temperature reaches 105° or more give rectal injections of cold water three or four times a day. When the temperature begins to subside, tonics are indicated. Do not put the animal to work for at least a month after all symptoms have disappeared. Careful nursing is essential.

Scratches (cracked heels).—An acute inflammation of the skin of the legs, usually that of the posterior part of the pastern. Caused by close, dirty stables; standing in dung, urine, and slush; washing and insufficiently drying the legs, and allowing animals with wet legs to stand in a draft. The treatment consists in rest; bran mashes, grass, etc.; potassium nitrate, 2 drams, in drinking water morning and evening. Cleanse the diseased parts with castile soap and water, dry, and apply a white lotion pack daily. When the parts are moist or oily, dry dressings, such as oxide of zinc, boric acid, or iodoform, either powdered on loosely or held in place by a piece of cotton and a bandage, may be used. When the parts become dry, hard, and scabby, oxide of zinc ointment may be applied once or twice daily.

Glanders.—May be chronic or acute. Chronic glanders is the form most frequently seen in the horse in temperate climates. The first symptom noticed is usually a discharge from one or both nostrils, which is whitish in color and which may later become tinged with blood. Pimples form on the mucous membrane of the nostrils and soon change to ulcers, which are more or less deep and have thickened and ragged edges. These ulcers frequently cause small hemorrhages and the nasal discharge then becomes mixed with blood. The sub-maxillary lymph glands become slightly thickened and sensitive, but later they become knotlike and painless. The animal becomes weak, emaciated, and easily fatigued. Cough and more or less interference

with breathing may be noticed. The temperature may be slightly elevated and irregular. The progress of the disease is slow, and the animal may live for years. In some cases prominent symptoms never develop during the life of the animal. In order to correctly diagnose obscure cases (those with no outward symptoms) either the mallein or ophthalmic test must be applied. Mallein is a liquid, the injection of which will cause a reaction (rise in temperature) in glandered horses apparently enjoying the best of health. Treatment, none.

Acute glanders is most common in the mule, though it may occur in horses in transit and in tropical climates. The symptoms are chill; temperature 105° to 107° ; discharge from the nose which may be bloody, pimples and ulcers on the mucous membrane of the nostrils, which sometimes perforate the nasal septum; respiration quickened and often difficult; rapid emaciation; and great weakness. The lymph glands of the lower jaw become enlarged and nodules and ulcers may form in the skin. The course of acute glanders is rapid and death takes place in from 3 to 14 days. Treatment, none. Glanders is incurable. The affected animal in acute cases should be destroyed at once and burned, and the stables and all equipment thoroughly disinfected. All exposed animals should be quarantined.

Acute laminitis (founder).—Usually affects the fore feet, sometimes the hind ones in addition, but seldom the hind ones alone. Caused by long-continued fast work on hard roads; prolonged standing; sudden chilling of the body; overfeeding; improper foods, especially such as are musty or moldy; sudden changes in diet. The symptoms are sudden and intense lameness. When the fore feet are affected they are planted far in advance of the body, and the hind ones are placed well forward under the belly. The pulse is strong and full; there is muscular trembling; the respirations are short and rapid; the affected feet are hot and painful; the temperature may rise to 105° or over. Give $1\frac{1}{2}$ pints of linseed oil as a drench, and add 2 to 4 ounces potassium nitrate to drinking water three times a day for one or two days. Remove the shoes and stand in a stream or pond for 5 or 6 hours a day. Feed soft foods only.

Thrush.—A disease of the frog characterized by an offensive odor and a softening of the horn. Caused by muddy roads, picket lines, and corrals, and a filthy condition of the floor of the stables. Clean, dry stalls are essential. Pare away all loose, underrun portions of horn, dry-clean the frog thoroughly with oakum, and apply tincture of iodine. When the iodine dries cover the parts with pine tar. If not lame, keep the animal at work.

Contagious and infectious diseases.—Strangles (distemper), influenza (pinkeye, catarrhal fever), contagious pneumonia, glanders, farcy, epizootic lymphangitis, tetanus, are examples. All animals

suspected of being infected should be isolated at once, and a veterinarian obtained.

Isolation is a preventive measure wherein an animal affected with a contagious disease, or one suspected of such a disease, is separated from the healthy animals and placed by itself. To be effective, isolation must be complete, otherwise it is useless.

By quarantine is meant the period during which animals suffering from contagious diseases are kept away from those known to be healthy. It also means the detention and isolation of animals coming from places infected, or suspected of being infected, with contagious diseases. Animals, especially remounts, should be quarantined upon their arrival at camp or garrison to determine whether or not they have been exposed to diseases of contagious or infectious nature.

The diseases for which animals should be isolated or quarantined are: Eczema, epizootic lymphangitis, glanders, influenza, lice, mange, nasal catarrh, pneumonia, ringworm, strangles, surra.

By disinfection is meant the destruction of organisms causing contagious and infectious diseases. Destruction may be caused by means of sunlight and heat, or by the use of chemical agents. Many germs will not live exposed to sunlight. Material contaminated with the germs of disease may be burned or boiled. The most common chemical agents used in disinfection are (to 1 gallon of water): 2 drams bichloride of mercury, $6\frac{1}{2}$ ounces of carbolic acid, 6 ounces of chloride of lime (fresh), 4 ounces of creolin, 6 ounces of formalin, 4 ounces of kreso.

Destruction of animals is best accomplished by shooting with a pistol. An imaginary line is drawn from the base of the right ear to the left eye and vice versa. The bullet should enter at the point where these two lines cross, the pistol being held close to the head. Carcasses may be disposed of by burning or by burying.

CONFORMATION AND INSPECTION.

The inspection of remounts is a very important duty and the care and intelligence with which it is performed has a marked effect on the efficiency of the service. Public animals are usually purchased under contract, the price paid by the Government being fixed by the lowest bidder. The inspection of animals is conducted by officers and veterinarians detailed for the purpose. Conformation and soundness are the things to which attention is mainly directed.

The specifications for the guidance of all concerned, in the inspection and purchase of horses for the military service, are as follows:

Cavalry and riding horses.—The mature horse must be sound, well bred, of a superior class, and have quality; gentle and of a kind dis-

position; well broken to the saddle, with light and elastic mouth, easy gaits, and free and prompt action at the walk, trot, and gallop; free from vicious habits, without material defect or blemish.

A gelding of a specified color, in good condition; from 5 to 8 years old at time of purchase; weighing from 950 to 1,200 pounds, depending on height, which should be from 15 to 16 hands.

Head.—Small and well set on neck; with ears small, thin, neat, and erect; forehead broad and full, eyes large, prominent, and mild, with well developed brow and fine eyelid; vision perfect in every respect; muzzle small and fine; mouth deep; lips thin and firmly compressed; nostrils large and fine; and branches of underjaw (adjoining neck) wide apart.

Neck.—Light, moderately long, and tapering toward the head, with crest firm and longer than underside; mane and forelock fine and intact.

Withers.—Elevated, not unduly fine, well developed and muscled.

Shoulders.—Long, oblique, and well muscled.

Chest.—Full, very deep, moderately broad, and plump in front.

Forelegs.—Vertical as viewed from front and side and properly placed; with elbow large, long, prominent, and clear of chest; forearm large at the elbow, long, and heavily muscled.

Knees.—Neatly outlined, large, prominent, wide in front, well situated, and well directed.

Back.—Short, straight, and well muscled.

Loins.—Broad, straight, very short, and muscular.

Barrel.—Large, increasing in size toward flanks, with ribs well arched and definitely separated.

Hind quarters.—Wide, thick, very long, full, heavily muscled, rounded externally, and well directed.

Stifle.—Well defined, prominent, and well supported by muscles of that region.

Tail.—Fine and intact; well carried and firm.

Hocks.—Neatly outlined, lean, large, wide from front to rear, well situated, and well directed.

Limbs.—From knees and hocks downward vertical, short, flat, wide laterally, with tendons and ligaments standing well out from bone and distinctly defined.

Pasterns.—Strong, medium length, not too oblique, and well directed.

Feet.—Medium size, circular in shape, sound; with horn smooth and of fine texture; sole moderately concave, and frog well developed, sound, firm, large, elastic, and healthy.

No white or gray horses will be purchased.

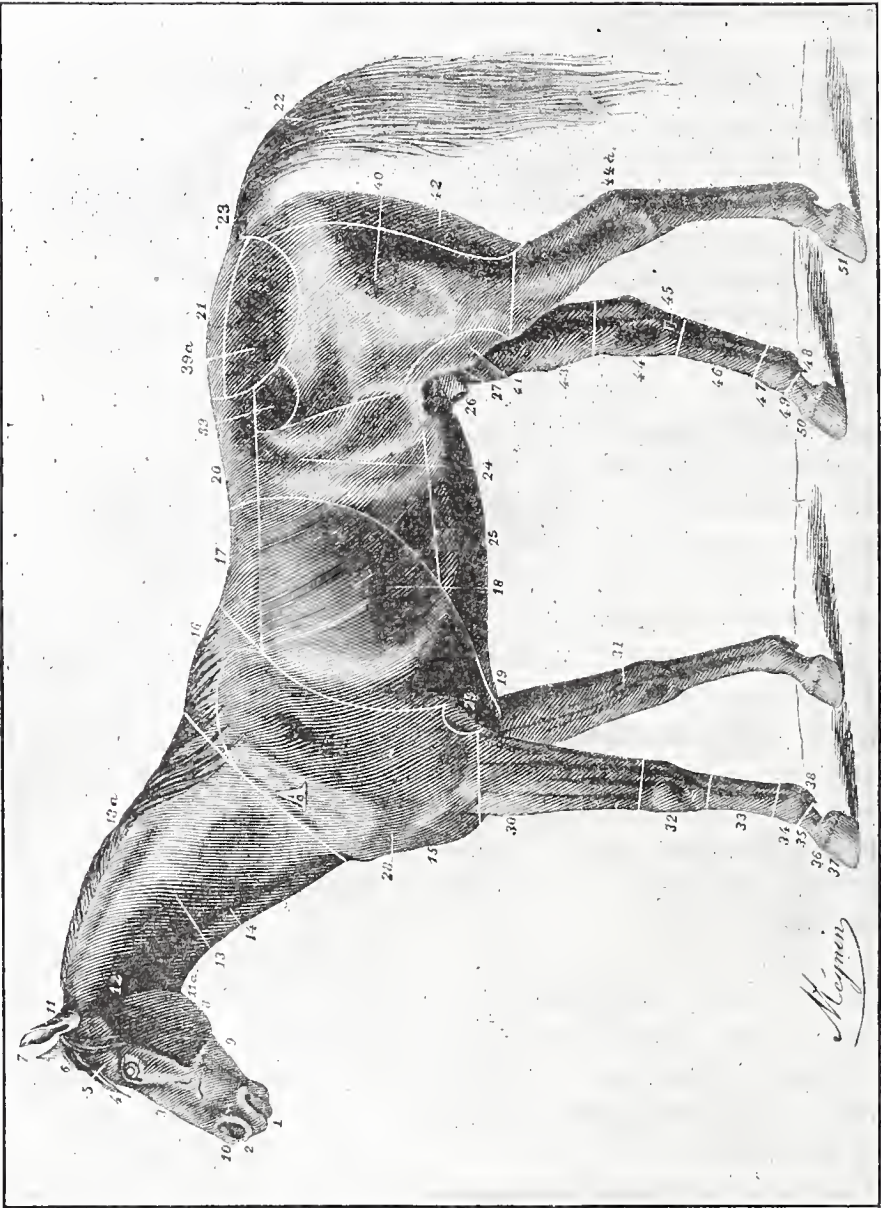
Artillery horses for light and horse batteries.—A gelding of specified color, in good condition, from 5 to 8 years old at time of purchase; height from 15½ to 16 hands; weight from 1,150 to 1,300 pounds, depending on height, and otherwise to conform to the description for Cavalry horses, except that the neck and shoulders of the Artillery horse should be somewhat more heavily muscled than the Cavalry horse, and shoulders so formed as to properly support the collar.

The Artillery horse for light and horse batteries is required for quick draft purposes and should be heavy enough to move the carriage ordinarily by weight thrown into the collar rather than by muscular exertion. Long-legged, loose-jointed, long-bodied, narrow-chested, coarse, and cold-blooded horses, as well as those which are restive, vicious, or too free in harness, will be rejected.

Artillery horses for heavy batteries.—A gelding conforming to the above specifications for Artillery horses, except that the animal should be from 16 to 17 hands high, and weigh from 1,400 to 1,700 pounds, depending on height.

A smart, active, heavy draft horse, with plenty of bone and substance, and enough quality to insure staying power in fairly fast work, is required for this service.

Method of inspection.—The animal is led up to halter and allowed to stand at ease, viewed from in front to observe position of front legs and feet and width of breast and shoulders and from both sides the position of front legs, particularly as to “calf knees” or “knee sprung.” The head, neck, back, barrel, and loins, are considered as to conformation. Passing to the rear, the hind quarters are viewed from profile to observe the contour of hips and hind legs, from which point a sloping or “goose rump,” a sickle leg, and a long springy pastern, or pastern unduly straight, or knuckled, can readily be seen. The animal is then viewed from the rear. If considered of the proper type, quality, and conformation, the animal is then measured (exclusive of shoes) and aged. The animal is then trotted away from and back to the inspectors to detect lameness or peculiarity of gait. The inspector of animals (a veterinarian) then proceeds with the examination for soundness from the left side by feeling the submaxillary space and throat for any enlargement of the glands or indications of distemper, etc., then feels of the poll, following the crest for depressions or signs of injury, to the withers. From this point the hand should pass over the shoulders to detect any possible depressions or inflations (by air to overcome atrophy of the muscles), the lateral cartilages and vicinity being felt for signs of sidebones or ringbones. From this point an excellent view of the hocks is gained, and the legs from the knee down are manipulated to detect



Points of the horse.

POINTS OF THE HORSE.

(See Plate I.)

- | | |
|------------------------------|------------------------------|
| 1. Lips. | 35. Pastern. |
| 2. Muzzle. | 36. Coronet. |
| 3. Face. | 37. Foot. |
| 4. Forehead. | 38. Fetlock. |
| 5. Eyebrows. | 39. Point of the hip. |
| 6. Forelock. | 39 <i>a</i> . Haunch. |
| 7. Ears. | 40. Thigh. |
| 8. Lower jaw. | 41. Stifle. |
| 9. Cheek. | 42. Buttock. |
| 10. Nostril. | 43. Gaskin. |
| 11. Poll. | 44. Hock. |
| 11 <i>a</i> . Throat. | 44 <i>a</i> . Point of hock. |
| 12. Parotid. | 45. Chestnut. |
| 13. Neck. | 46. Cannon. |
| 13 <i>a</i> . Mane. | 47. Fetlock joint. |
| 14. Jugular channel. | 48. Fetlock. |
| 15. Breast (front of chest). | 49. Pastern. |
| 16. Withers. | 50. Coronet. |
| 17. Back. | 51. Foot. |
| | |
| 18. Ribs, or barrel. | |
| 19. Girth. | |
| 20. Loins. | |
| 21. Croup. | |
| 22. Tail. | |
| 23. Dock. | |
| 24. Flank. | |
| 25. Belly. | |
| 26. Sheath. | |
| 27. Testicles. | |
| 28. Point of shoulder. | |
| 28 <i>a</i> . Shoulder. | |
| 28 <i>b</i> . Arm. | |
| 29. Elbow. | |
| 30. Forearm. | |
| 31. Chestnut. | |
| 32. Knee. | |
| 33. Cannon. | |
| 34. Fetlock joint. | |

any irregularities, such as splints, filled or bowed tendons or ligaments. The hind legs are examined from the side for curb, bog spavin, and thoroughpin, and from the rear for bone spavin or other enlargement, and for a "point" knocked off or a hip down. The right side is gone over in the same way. The animal is then turned or twisted abruptly first one way and then the other, then backed a few steps sharply, and immediately caused to step forward quickly. The twist will develop any symptoms of stringhalt that may be present, and the backing and quick start will show any deficiency in loins or locomotion. The animal is then weighed, taken to an open door or window, into a reflected light (not into sunlight), where the eyes are examined under the most suitable conditions. The Cavalry horse is then saddled, made to walk away from and toward, trot away from and toward the inspectors, to observe gaits; then galloped, and finally run for wind test. The Artillery horse or other draft animal is worked in harness to a heavy wagon at the walk, trot, and run, for gaits and wind. A record book should be kept, showing the number, description, etc., of each animal inspected. If an animal is rejected, the reason for rejection should be noted.

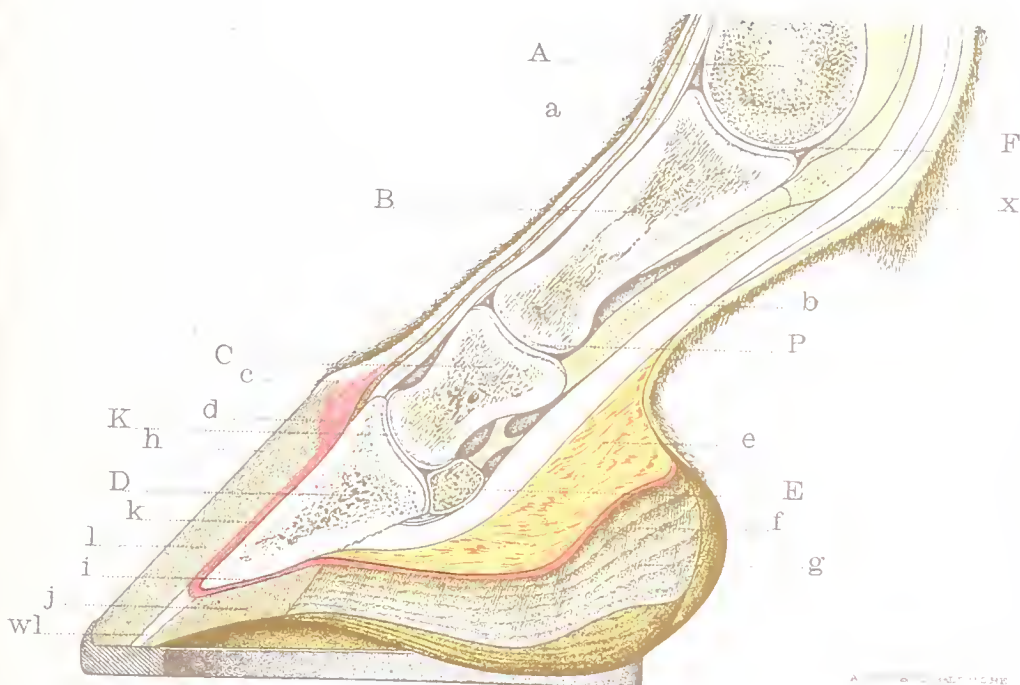
The line of demarkation between blemishes and defects is sometimes rather vague. Under blemishes come all abnormal conditions of the various parts of the horse which do not affect his serviceability, such as scars and splints so placed as to be of no consequence. Under the head of defects come pegged splints and those very close to the knees, ringbones, sidebones, false quarter, quarter cracks, sit-fasts, and any trouble, local or constitutional, which may tend to shorten or render unsatisfactory the service of the animal.

Some of the faults to be avoided, not mentioned above, both in conformation and in soundness, are narrow forehead, small nostrils, small eyes, ears large and close together, "Roman nose," ewe-neck, high and thin withers, short and upright shoulders (for Cavalry), roach-back, sway-back, shad-belly, flat-foot, pigeon-toe, toes turned out, cocked ankles, cow-hock, cribber, biter, kicker, weaver, ulcerated teeth, capped elbow, capped hock, roaring, whistling, or broken wind.

LEATHER EQUIPMENT.

The care of equipment, especially that of leather equipment, is very important, and officers and noncommissioned officers should be familiar with the methods involved. All men should receive instruction in this subject, and the cleaning of leather equipment should be done habitually under the supervision of a commissioned officer.

Leather equipment must always be cleaned after being used. A mounted duty is not complete until horses, harness, saddlery, arms, and equipment have been put again in condition. The care and re-



PARTS OF THE HOOF AND PASTER.N.

- A. Cannon bone.
- B. Long pastern.
- C. Short pastern.
- D. Coffin bone.
- E. Shuttle bone.
- F. Fetlock joint.
- K. Coffin joint.
- P. Pastern joint.
- a. Extensor tendon.

- b. Deep flexor tendon.
- c. Periopic ring.
- d. Coronary band.
- e. Plantar cushion.
- f. Sensitive frog.

- g. Horny frog.
- h. Periople.
- i. Sensitive sole.
- j. Horny sole.
- k. Sensitive laminae.
- l. Horny wall.
- wl. White line.
- x. Ergot.



pair of small arms and ordnance equipment is specifically treated of in Ordnance Pamphlet No. 1965.

Leather properly cared for will remain soft and pliable until absolutely worn out; but if not cared for or improperly cared for it soon dries out, becomes still and brittle, its fibers are then easily broken, and the equipment rendered useless in a comparatively short time.

A cleaning agent and an oiling agent are necessary to keep leather equipment in first-class condition.

Neat's-foot oil is an animal oil used to soften and preserve leather. Apply with a moistened cloth to the flesh side of moistened leather. Unit of issue, pint.

Castile soap is an alkaline soap used in cleaning leather equipment. Apply as a lather on a moistened sponge. Unit of issue, pound.

Saddle soap is used as a dressing for leather equipment. Apply with thick lather on a moistened sponge. Unit of issue, pound.

The cleaning agent, either castile or ordinary harness soap, is used to remove all dirt, sweat, and other matter which ordinarily accumulates in the surface pores of the leather, preventing the penetration of oil. Castile soap is a powerful cleanser, frequently containing an excess of free alkali, which renders it an active agent in removing dirt. However, castile soap has no tendency of itself to soften and preserve leather. Good harness soap, on the other hand, contains no free alkali, but frequently contains a certain percentage of uncombined fatty substances available for softening and preserving purposes. White soap may be used in place of castile soap. The oiling agent penetrates the pores of the leather and saturates the fibers, making them pliable and elastic. Dry leather is brittle; leather excessively oiled will soil the clothing and accumulate dirt. The condition to be desired is sufficient oil to obtain softness and pliability without exudation due to an excess. Neat's-foot oil has been found by long experience to be the most satisfactory and is issued for this purpose by the Ordnance Department.

Daily, or as often as used, leather equipment should be wiped off with a cloth slightly dampened in water to remove mud, dust, or other foreign substances. (It should never be cleaned by immersing it in water.) This takes but a few minutes and maintains the appearance of the equipment, but is, however, insufficient of itself to properly preserve it. Bits and other metal parts of harness should be wiped off with a rag slightly moistened with oil.

At intervals of from one to four weeks, depending upon climatic conditions and the use to which it has been subjected, it is essential that the equipment should be thoroughly cleaned. To do this properly, all parts of the equipment should be separated and the entire equipment reduced to its simplest elements.

All surface dust and mud should be wiped off with a damp sponge. The sponge should then be rinsed out, moistened in clean water, and squeezed out, and a thick lather be formed by working the sponge vigorously on the castile soap. When a thick creamy lather is obtained each piece of the leather equipment should be thoroughly cleaned, working the sponge upon every portion and drawing each strap its entire length through the lathered sponge, so as to thoroughly remove the salt, sweat, or dirt from each leather piece.

After the leather parts are made fairly clean with castile soap the sponge should be rinsed again and a thick lather be made with the saddle or harness soap. This should be thoroughly worked into every part of the equipment in order to obtain a fine surface dressing and finish.

When the leather has been allowed to become partially dry but not hard, it should be rubbed vigorously with a soft cloth to give it a neat, finished appearance.

If the foregoing instructions have been carefully executed the appearance of the equipment should be perfect, and if the leather is thoroughly soft and pliable nothing further is required. In general, however, it will be found desirable to apply a small amount of oil from time to time.

It is not practicable, owing to different conditions of climate and service, to prescribe the frequency of oiling. It has been found that during the first few months of use a set of new leather equipment should be given at least two applications of oil per month. Thereafter it is entirely a matter of judgment as indicated by the appearance and pliability of the leather. Frequent light applications of oil are more valuable than occasional heavy applications.

The necessity for a light application of oil before use, when new equipment is received, is that leather frequently remains a considerable period of time in storage in an arsenal, thus drying out. Upon issue of the equipment this oil should be immediately replaced. As new equipment is clean, no application of soap is necessary. All that is necessary is that the leather be slightly moistened, and that the oil be lightly and quickly applied.

As far as practicable the oil should be applied on the flesh side, as it penetrates much more readily from this side than from the grain side. Leather which has been cleaned should still be damp, or about "halfway" at the time of oiling.

The oil should be applied with a rag or with cotton waste moistened in it to prevent an excess being used. The use of an excess of oil will do the leather no injury, but it will continually ooze out and will soil clothing. The tendency is to use too much oil; about one ounce is enough for a set of harness.

After leather equipment is oiled it should, if possible, remain in a warm, dry place for 24 hours, and then be rubbed thoroughly with a coarse cloth to remove any unabsorbed oil.

The following cautions should be observed:

Keep the leather clean.

Keep leather pliable by frequent light applications of oil.

Use only materials furnished by the Ordnance Department. Shoe polishes, etc., are almost invariably injurious.

Dry all leather wet from whatever cause in the shade; never in the sun or close to a steam radiator, furnace, or boiler.

Leather should habitually be stored in a cool, dry place, without artificial heat.

In active campaign or on the march, advantage should be taken of such opportunities as the situation affords to keep the equipment out of the mud and protect it from rain, dust, and heat. Racks can be improvised with forked sticks and crossbar, or advantage taken of a neighboring fence. A piece of canvas, a poncho, or a manta affords considerable protection. When shelters are provided for animals and forage, provision should also be made for the horse equipment.

When any of the leather equipment becomes badly worn or is torn or broken, the articles should be turned over to the troop or battery saddler for repairs. Repairs should not be allowed to accumulate but should be made as damages occur.

The saddle is the most expensive article of horse equipment and should not be thrown about or left where horses may step upon it or where it may be otherwise abused. Breast collars should not be subjected to rough treatment, or they may be bent out of shape and rendered unfit for use. Breast collars may be kept in a pliable condition by opening the folds and placing therein a small amount of dubbing as issued, rubbing the folds gently by hand. Too much dubbing should not be used.

All metal parts, except bits and spurs, need ordinarily only to be wiped clean with a cloth slightly moistened in oil; they are purposely issued dark, and it is desired that they be kept in that condition. The use of warm water on the bits, stirrups, or similar portions to remove hardened saliva, sweat, mud, etc., is frequently advantageous. The bit, chain, and spurs may also be polished, but all dark metal should be cleaned and oiled only, and should never be attacked with corroding agents.

H. & H. soap is a neutral naphtha soap used in washing web and cloth equipment. Applied in the form of a solution (1 cake to 9 cups of hot water) or directly on the brush. After washing, equipment should always be dried in the shade. Unit of issue, cake.

Brush the cloth equipment thoroughly to remove all dust and mud before washing. Spread the blanket, belt, etc., on a clean board or rock and apply the soap solution with a scrub brush. When a good lather appears wash off with clear water.

The saddle blanket should be kept clean and soft and free from wrinkles. In campaign and on the march saddle blankets should be thoroughly brushed at least once daily. They should never be folded wet and left in that condition. When necessary the blanket may be washed as above described, or be cleaned by repeated immersions in tepid soapsuds and hung over a pole or line to dry, without wringing or pressing.

